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**REMARKS**

Claims 1 and 3-23 are all of the claims presently pending in the application. The claims have not been amended by this Response.

Claims 1, 3-9, 12-14 and 17-23 stand rejected under 35 U.S.C. §102(e) as being anticipated by Uchida (U.S. Patent No. 6,897,430). Claims 10, 11, 15 and 16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Uchida in view of Verdiell (U.S. Patent Application Publication No. 2001/0017376 A1).

These rejections are respectfully traversed in the following discussion.

**I. THE CLAIMED INVENTION**

The claimed invention of exemplary claim 1, provides an optoelectronic hybrid integrated module wherein the optical device and the input/output IC are flip-chip mounted on a surface of the transparent base material (e.g., see Application at Figure 1 and page 4, line 25 through page 5, line 11). This allows the number of components and processes of the module to be reduced so that mounting costs can be suppressed (e.g., see Application at page 5, lines 20-23).

**II. PRIOR ART REFERENCES****A. The Uchida Reference**

The Examiner alleges that Uchida teaches the claimed invention of claims 1, 3-9, 12-14 and 17-23. Applicants, however, respectfully submit that Uchida does not teach or suggest each and every feature of the claimed invention.

That is, Uchida does not teach or suggest "*wherein the optical device and the input/output IC are flip-chip mounted on the transparent base material*", as recited in exemplary claim 1 and similarly in claim 12.

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The Examiner attempts to rely on Figures 3 and 4 (and the corresponding text) of Uchida to support his allegations. The Examiner, however, is clearly incorrect.

That is, nowhere in this figure nor this passage (nor anywhere else for that matter) does Uchida teach or suggest that the optical device and the input/output IC are flip-chip mounted on a surface of the transparent base material. Indeed, the Examiner has clearly misunderstood the teachings of Uchida.

The Examiner alleges that Uchida teaches an optical device and an input/output IC for drive-controlling the optical device. The Examiner attempts to rely on features 1201 and 1208 of Uchida to support her allegations. The Examiner, however, is clearly incorrect.

That is, Uchida merely teaches a light receiving part 1201 and a light emitting part 1208. These features of Uchida, which the Examiner erroneously analogizes to the optical device and the input/output IC of the claimed, do not teach or suggest the claimed invention.

The Examiner alleges that Uchida discloses an optoelectronic hybrid integrated module and logic LSI of the present invention. However, the Examiner deems the optical device, which is component of the optoelectronic hybrid integrated module, to be a light emitting part 1208 and a light receiving part 1201. Therefore, there seems to be no recitation in Uchida corresponding to an input/output IC, which is outside of the optical device. The present invention distinguishes the logic LSI from the input/output IC, however, the Examiner confuses them.

Furthermore, the claimed invention recites "*an input/output IC for drive-controlling the optical device*". Neither the light receiving part 1201 nor the light emitting part 1208 of Uchida teaches or suggests this feature of the claimed invention. That is, neither the light receiving part 1201 nor the light emitting part 1208 of Uchida drive-controls the optical device. This feature is possible if the optical device is outside. Uchida, however, teaches that

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a preamp is integrated on the surface of the light receiving part 1201 so as to restore a CMOS compatible voltage (see Uchida at column 12, line 65 through column 13, line 3).

Indeed, the Examiner attempts to rely on column 3, lines 4-9 and column 6, line 59 to column 7, line 17 of Uchida to support her allegations. The Examiner, however, has misunderstood these passages of Uchida.

That is, nowhere in these passages (nor anywhere else for that matter) does Uchida teach or suggest that the light receiving part 1201 nor the light emitting part 1208 of Uchida converts one of an optical signal into an electrical signal and an electrical signal into an optical signal.

In stark contrast, Uchida clearly teaches that “an electric signal from the electronic device 1106 is converted to an optical signal by an E/O conversion section (not shown) and this optical signal is spread over the optical sheet 1102” (see Uchida at column 6, lines 61-67). Indeed, the optical/electrical conversion is conducted by an E/O conversion section (not shown) not by the light receiving part 1201 nor the light emitting part 1208 of Uchida.

The Examiner further alleges that the alleged optical device and input/output IC are flip-chip mounted on a surface of the transparent base material. The Examiner, however, is clearly incorrect.

That is, as indicated above, the Examiner has analogized the light receiving part 1201 nor the light emitting part 1208 of Uchida to the optical device and the input/output IC of the claimed invention. Uchida does not teach or suggest that the light receiving part 1201 nor the light emitting part 1208 are flip-chip mounted. Indeed, as is clearly depicted in Figure 4 of Uchida the light receiving part 1201 nor the light emitting part 1208 are mounted on a surface of the substrate. Indeed, as indicated by the Examiner, the light receiving part 1201 and the light emitting part 1208 of Uchida are mounted within the substrate (see Office Action dated December 15, 2006 at page 3).

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Furthermore, Uchida merely teaches that the electronic device 1103 is flip-chip mounted (see Uchida at column 7, lines 21-22). The Examiner appears to be applying the teaching of the electronic device 1103 to the alleged optical devices 1201 and 1208. Thus, Applicants again submit that the Examiner has mischaracterized the teachings of Uchida.

The Examiner also erroneously alleges that the electric wiring 1104 of Uchida is mounted on a surface opposite to the surface that the optical device and the input/output IC are mounted. The Examiner, however, is clearly incorrect.

That is, the electronic wiring 1104, the electronic device 1103 and the alleged optical devices 1201 and 1208 are all mounted on the same surface of the substrate (1205).

In the outstanding Office Action, the Examiner considers that, in Uchida, the electric wiring 1104 connecting the optical device and the input/output IC is positioned on a surface of the transparent base material, and the electrical wiring is provided a ground electrode and serving as an electromagnetic shield because it is on the opposite surface of where the optical device is mounted.

Uchida, however, merely recites that an optical wiring is impervious to an influence of EMI and does not mention an electrode serving as an electromagnetic shield (see Uchida at column 13, lines 24-30). Moreover, the signal wiring to which the optical device is connected, as disclosed in Uchida, cannot cover the substrate. Therefore, the effect of electromagnetic shield is not expected. The electromagnetic shield becomes possible when the input/output IC and the optical device are positioned on the same surface and the opposite surface is to be a ground electrode.

The Examiner alleges that "since the optical device 1203, 1208 are spherical and are partially mounted within the substrate, examiner considers the electric wiring 1104 to be on the opposite surface of where the optical device is mounted" (see Office Action dated December 15, 2006 at page 3). This allegation, however, is without merit.

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Indeed, to meet each and every limitation of the claimed invention, the optical device and the input/output IC must be mounted on a surface of the transparent base material. Therefore, if the Examiner alleges that the optical devices 1203 and 1208 are not mounted on the upper surface of the upper clad 1205 (which is the same surface that the electric wiring is mounted on) then Uchida would fail to teach or suggest that the optical device and the input/output IC must be mounted on a surface of the transparent base material.

Applicants submit that it is not proper for the Examiner to consider each limitation of the claimed invention individually and then pick and choose features of Uchida that support the Examiner's interpretation of the individual claim limitations. Indeed, the Examiner must consider the claimed invention as a whole.

Moreover, Uchida does not teach or suggest that "*light inputting/outputting between the optical device and an outside of the module is carried out due to the light permeability of the transparent base material*", are recited in exemplary claim 1 and similarly claim 12.

Indeed, the Examiner has not even addressed this feature in her rejection. If the Examiner wishes to maintain her rejection of the claimed invention, the Examiner must address each and every feature of the claimed invention.

Moreover, Uchida does not teach or suggest "*a transparent base material comprising a light inputting/outputting portion*", as recited in claim 23.

Indeed, the Examiner does not even address this feature in his rejection of claim 23. With respect to claim 13, however, the Examiner alleges that the "optical device is further positioned directly under the light inputting/outputting portion (Fig. 7, '1706' '1780')" (see Office Action dated December 15, 2006 at pages 3-4). The Examiner, however, is clearly incorrect.

That is, features 1706 and 1780 of Uchida teach an electronic device and a light receiving part 1780, respectively. Therefore, neither of these features relied upon by the

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Examiner teach or suggest a light inputting/outputting portion and neither of these features are included in the transparent base material.

Moreover, the Examiner (on pages 3 and 4 of the Office Action dated December 15, 2006) alleges, with respect to the transparent base material, that while the present invention does not define the scope of the material having high permeability to a wavelength of the optical device, Uchida discloses that the transparent base material includes a flexible sheet transmitting a light.

However, the present invention does not have a waveguide structure, and a light is propagated vertically to a surface of the transparent plate. In stark contrast, Uchida discloses a waveguide having a core layer and a clad layer. Therefore, in Uchida, there is a possibility of dispersion or reflection caused by the difference in refractive index, and therefore the light permeability is lost.

Furthermore, with respect to exemplary dependent claim 9, the Examiner alleges that Uchida discloses that the light receiver and the light transmitter acts as an axis converter. However, the light receiving part and/or the light emitting part is positioned on the surface. Consequently, a direction of the optical axis is not converted.

With respect to claim 18, the Examiner alleges that in Uchida the light inputting/outputting portion includes a convex lens. Applicants submit, however, that the light receiving part 1201 and the light emitting part 1208 are formed on the surface of a spherical substrate, and they do not function as a lens. If these parts were lenses, then the optical device of Uchida would be on the inside.

Therefore, Applicants respectfully submit that Uchida does not teach or suggest each and every feature of the claimed invention. Therefore, the Examiner is respectfully requested the reconsider and withdraw this rejection.

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**B. The Verdiell Reference**

The Examiner alleges that Verdiell would have been combined with Uchida to teach the claimed invention of claims 10, 11, 15 and 16. Applicants respectfully submit, however, that, even if combined, the alleged combination of references would not teach or suggest each and every feature of the claimed invention.

That is, neither Verdiell nor Uchida, nor any combination thereof, teaches or suggests “*wherein the optical device and the input/output IC are flip-chip mounted on the transparent base material*”, as recited in exemplary claim 1 and similarly claim 12.

Applicants respectfully submit that, as detailed in section A, above, Uchida does not teach or suggest this limitation. Furthermore, Applicants respectfully submit that Verdiell does not make up the deficiencies of Uchida.

That is, nowhere does Verdiell teach or suggest that the optical device and the input/output IC are flip-chip mounted on a surface of the transparent base material. The Examiner does not even allege that Verdiell teaches or suggests this feature.

Furthermore, Verdiell teaches that the entire optical device is sealed with the package 10. In stark contrast, in the claimed invention, only a space between the transparent plate and the optical device is sealed. Therefore, no expensive packaging of mounting is necessary and low cost is achieved.

Thus, Verdiell fails to make up the deficiencies of Uchida.

Therefore, Applicants respectfully submit that, even if combined, the alleged combination of references would not teach or suggest each and every feature of the claimed invention. Therefore, the Examiner is respectfully requested to reconsider and withdraw this rejection.

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**III. FORMAL MATTERS AND CONCLUSION**

In view of the foregoing, Applicants submit that claims 1 and 3-23, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: March 15, 2007



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**FACSIMILE TRANSMISSION**

I hereby certify that I am filing this paper via facsimile, to Group Art Unit 2883, at (571) 273-8300, on March 15, 2007.

Date: March 15, 2007

Respectfully Submitted,



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